

## **CLAIMS**

What is claimed is:

1. An insecticide formulated by combining an insecticidably effective amount of an insecticidal (tetrahydro-3-furanyl) methylamine derivative and an insect growth inhibiting effective amount of an insect growth regulator (IGR) in an effective amount of a solvent component comprising water, ethyl lactate and a quaternary ammonium salt, said solvent component comprising a sufficient amount of quaternary ammonium salt to increase the solvency of the IGR in the solvent component compared to the solvency of the IGR in the solvent component without the quaternary ammonium salt and to increase the effectiveness of the insecticide compared to its effectiveness without the quaternary ammonium salt.
2. The insecticide of claim 1, wherein the insecticidal derivative component comprises dinotefuran.
3. The insecticide of claim 2, wherein the IGR component comprises pyriproxyfen or methoprene.
4. The insecticide of claim 3, wherein the IGR component comprises pyriproxyfen.
5. The insecticide of claim 4, wherein the quaternary ammonium salt component comprises oleyldimethylammonium chloride.
6. The insecticide of claim 4, wherein the quaternary ammonium salt component comprises cetyltrimethylammonium chloride.
7. The insecticide of claim 4, wherein the quaternary ammonium salt component comprises tallowalkyltrimethyl ammonium chloride.

8. The insecticide of claim 1, wherein the solvent component further comprises ethanol.
9. The insecticide of claim 1, wherein the insecticidal derivative is dissolved in the formulation to a concentration of about 5 to 15%.
10. The insecticide of claim 1, wherein said IGR component is dissolved in the formulation to a concentration of about 0.5 to 5%.
11. The insecticide of claim 1, wherein the concentration of quaternary ammonium salt is about 1 to 20%.
12. The insecticide of claim 5 wherein said insecticidal derivative is dissolved in the formulation to a concentration of about 5 to 15%.
13. The insecticide of claim 12 wherein said IGR component is dissolved in the formulation to a concentration of about 0.5 to 3%.
14. The insecticide of claim 13, wherein the concentration of quaternary ammonium salt is about 1 to 20%.
15. The insecticide of claim 6 wherein said insecticidal derivative is dissolved in the formulation to a concentration of about 5 to 15%.
16. The insecticide of claim 15 wherein said IGR component is dissolved in the formulation to a concentration of about 0.5 to 3%.
17. The insecticide of claim 16, wherein the concentration of quaternary ammonium salt is about 19 to 20%.

18. The insecticide of claim 7 wherein said insecticidal derivative is dissolved in the formulation to a concentration of about 5 to 15%.
19. The insecticide of claim 18 wherein said IGR component is dissolved in the formulation to a concentration of about 0.5 to 3%.
20. The insecticide of claim 19, wherein the concentration of quaternary ammonium salt is about 19 to 20%.
21. The insecticide of claim 1, wherein the formulation is not irritating to dogs or cats and is effective to kill fleas with applications of less than 20 ml to a cat.
22. The insecticide of claim 14, wherein the formulation is not irritating to dogs or cats and is effective to kill fleas with applications of less than 20 ml to a cat.
23. The insecticide of claim 17, wherein the formulation is not irritating to dogs or cats and is effective to kill fleas with applications of less than 20 ml to a cat.
24. The insecticide of claim 20, wherein the formulation is not irritating to dogs or cats and is effective to kill fleas with applications of less than 20 ml to a cat.
25. A method of controlling insect infestation in animals, comprising dissolving dinotefuran and pyriproxyfen in a solvent mixture comprising water, ethyl lactate and a quaternary ammonium salt, and applying an insecticidably effective amount of the solution to an animal.
26. The method of claim 25, wherein the quaternary ammonium salt is oleyldimethylammonium chloride.

27. The method of claim 25, wherein the quaternary ammonium salt comprises cetyltrimethylammonium chloride.
28. The method of claim 25, wherein the quaternary ammonium salt comprises tallowalkyltrimethyl ammonium chloride.
29. The method of claim 25, wherein the animal is a cat or a dog.
30. The method of claim 29, wherein the insect is a flea.
31. A method of preparing an insecticide, said method comprising dissolving an insecticide in a composition comprising oleyldimethylammonium chloride, wherein at least of a portion of the insecticide is dissolved by the oleyldimethylammonium chloride.
32. An insecticidal composition comprising an insecticidably effective amount of dinotefuran and an insect growth regulating amount of pyriproxyfen.
33. The insecticidal composition of claim 32, further comprising a solution comprising a quaternary ammonium salt.
34. The insecticidal composition of claim 33, wherein the quaternary ammonium salt component comprises oleyldimethylammonium chloride.
35. The insecticidal composition of claim 33, wherein the quaternary ammonium salt component comprises cetyltrimethylammonium chloride.
36. The insecticidal composition of claim 33, wherein the quaternary ammonium salt component comprises tallowalkyltrimethyl ammonium chloride.

37. The insecticidal composition of claim 33, wherein the solution further comprises ethyl lactate and water.